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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/820,783 | 04/09/2004 | Ting Wang | A8750 | 8725 |
| 23373 | 7590 | 11/16/2004 | EXAMINER | |
| SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | CONNELLY CUSHWA, MICHELLE R | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2874 | |

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/820,783

Applicant(s)

WANG ET AL.

Examiner

Michelle R. Connelly-Cushwa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,19 and 20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0404.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

The prior art documents submitted by applicant in the Information Disclosure Statement filed on April 9, 2004 have all been considered and made of record (note the attached copy of form PTO-1449).

Drawings

Twenty-five (25) sheets of formal drawings were filed April 9, 2004 and have been accepted by the Examiner.

Specification

Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3, 5, 19 and 20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-40 of U.S. Patent No. 6,307,987 B1.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the optical luminescent display device defined in claims 1, 14, 20 and 21 of U.S. Patent No. 6,307,987 B1 include at least all of the limitations of claims 1-3, 5 and 19 of the present application (U.S. Patent Application No. 10/820,783); and claim 34 of U.S. Patent No. 6,307,987 B1 includes at least all of the limitations of claim 20 of the present application (U.S. Patent Application No. 10/820,783).

Claims 1-3, 5, 19 and 20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-44 of U.S. Patent No. 6,760,515 B1.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the optical luminescent display device defined in claims 1, 22 and 32-35 of U.S. Patent No. 6,760,515 B1 include at least all of the limitations of claims 1-3, 5, 19 and 20 of the present application (U.S. Patent Application No. 10/820,783).

Claims 1-3, 5, 19 and 20 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 3-5 of copending Application No. 09/853,575.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the optical luminescent display device defined in claims 3 and 5 of U.S. Patent Application No. 09/853,575 either disclose or suggest at least all of the limitations of claims 1-3, 5, 19 and 20 of the present application (10/820,783). One of ordinary skill in the art would have found it obvious to emit radiant energy into an optical fiber and direct the radiant energy toward a luminescent material via a notch formed in the fiber, given the arrangement disclosed in claim 3 of U.S. Patent Application No. 09/853,575.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented. However, since U.S. Patent Application No. 09/853,575 has been allowed, this provisional double patenting rejection will be converted into a double patenting rejection when U.S. Patent Application No. 09/853,575 issues.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 2 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by DeLuca et al. (US 6,031,511).

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Regarding claims 2 and 19; DeLuca et al. discloses an optical luminescent display device (see the abstract; Figures 4 and 5; and column 5, line 36, through column 6, line 23), comprising;

- a luminescent material (phosphor, located at the intersections of the optical fibers, 53 and 54); and
- a side emitting optical fiber (222, 232, 257, 242, 258) adapted for supplying radiant energy to the luminescent material (see column 5, lines 39-60); wherein
- means for deviating a path of radiation traveling within the optical fiber away from the axis of the fiber toward the luminescent material include etched or non-smooth surfaces of the fiber to facilitate the intersection of energy beams at pixels.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeLuca et al. (US 6,031,511) in view of Appeldorn et al. (US 5,432,876).

Regarding claims 1, 3, 5 and 20; DeLuca et al. discloses an optical luminescent display device adapted for use with radiant energy (see the abstract; Figures 4 and 5; and column 5, line 36, through column 6, line 23), including a combination comprising;

- an optical fiber (222, 232, 257, 242, 258); and
- a luminescent material (phosphor, located at the intersections of the optical fibers, 53 and 54);
- wherein the optical fiber is configured so as to direct a first type of radiant energy within the fiber toward the luminescent material;
- wherein the luminescent material requires excitement from a first type of radiant energy to emit visible light (see column 4, lines 62-64); and
- wherein the radiant energy is emitted into the optical fiber, and directed toward the luminescent material via a side surface of the fiber (see Figure 4 and column 5, lines 34-64).

DeLuca et al. does not disclose that the adapted surface of the optical fiber includes a notch to direct the radiant energy towards the luminescent material. DeLuca et al. teaches that the surface of the fibers may be adapted to facilitate the intersection of the energy beams within the fibers at pixels (53 and 54) by providing an etched or non-smooth surface at the locations of the pixels (see column 5, lines 57-60).

Appeldorn et al. discloses optical fibers capable of selectively emitting light for use in illumination devices (see column 3, lines 20-22) that generally comprise a panel and one or more optical fibers arranged such that at least a portion of the light is

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transmitted through the wall of the fibers (see column 5, lines 25-29). Appeldorn et al. further teaches that the surfaces of the fibers on the side where light is emitted have notches formed therein to direct light therefrom. Thus, one of ordinary skill in the art would have found it obvious to provide a non-smooth surface on the sides of the optical fibers in the invention of DeLuca et al. by forming notches in the sides of the optical fibers to direct light from the sides of the optical fibers to the luminescent material located at the intersection of the optical fibers.

Claims 1-3, 5, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crossland et al. (WO 95/27920) in view of Appeldorn et al. (US 5,432,876).

Crossland et al. discloses, e.g., Figs. 2 and 6, a liquid-crystal display (LCD) screen including a backing layer 17 acting as a light guide for ultra-violet (UV) activating light; a liquid-crystal (LC) layer 29 containing cells that when suitably addressed allow light to pass from the backing layer through the cell; and an emitting layer containing phosphor-type elements 35, 37, 39 corresponding to the cells, for emitting display light when the activating light reaches them; characterized by means for collimating the activating light towards the phosphor-type element (abstract; p. 5, line 9-19). The UV light can be applied to the backing layer 17 either through the back surface, indicated at 61, or at its edge or edges 20, indicated at 57 (p. 14, lines 25-28). The phosphors overcome the problem of restricted viewing angle in LCDs (p. 2, line 8, to p. 3, line 5). The collimating means can be a grid of apertures in a reflective layer 21 (Fig. 2, p. 14, lines 2-5); protuberances 47 around the opening which act as collimating lenses (Fig. 3,

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p. 14, lines 5-8); locating the LC material in discrete holes 49 in a opaque substrate 51 (Figs. 4 and 5); p. 15, lines 10-20); using etched depressions 81 in the backing layer 17 to scatter the UV light (Fig. 6; p. 15, lines 21-29); and using lenslets (Fig. 7; p. 15, lines 30 to p. 16, line 3).

Appeldorn et al., Fig. 10, discloses an LCD comprises of a liquid crystal shutter (LCS) array 50 illuminated by a substantially parallel array 46 of notched optical fibers 48 (col. 12, lines 39-44). The level of ordinary skill in the art is evidenced by the references. See *In re Oelrich*, 579 F.2d 86, 91, 198 USPQ 210, 214 (CCPA 1978) ("the PTO usually must evaluate both the scope and content of the prior art and the level of ordinary skill solely on the cold words of the literature"); *In re GPAC Inc.*, 57 F. 3d 1573, 1579, 35 USPQ2d 1116, 1121 (Fed. Cir. 1995) (the Board did not err in adopting the approach that the level of skill in the art was best determined by the references of record). The difference between the subject matter of claims 1-3, 5, 19 and 20, and Crossland et al. is that Crossland et al. does not use an optical fiber containing a notch to illuminate the LC cells and the luminescent material. One of ordinary skill in the art would have been motivated to substitute the substantially parallel array 46 of notched optical fibers 48 of Appeldorn et al. for the backing layer 17 of Crossland et al. since Appeldorn et al. expressly teaches that the optical fiber array can be used an illumination source for an LCD. Alternatively, the difference between the subject matter of claims 1-3, 5, 19 and 20 and Appeldorn et al. is that Appeldorn et al. does not illuminate a luminescent material with the light from the notched optical fibers. One of ordinary skill in the art would have been motivated to provide phosphors at the viewing

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side of the LC shutters in Appeldorn et al. to increase the viewing angle in view of the teaching of Crossland (p.2, line 8, to p. 3, line 5).

Conclusion

Any inquiry concerning the merits of this communication should be directed to Examiner Michelle R. Connelly-Cushwa at telephone number (571) 272-2345. The examiner can normally be reached 9:00 AM to 7:00 PM, Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney B. Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general or clerical nature should be directed to the Technology Center 2800 receptionist at telephone number (571) 272-1562.


Michelle R. Connelly-Cushwa
Patent Examiner
November 10, 2004